OIPE JC112 JUL 16 2004 PATENT & TRADEMARK OFFICE

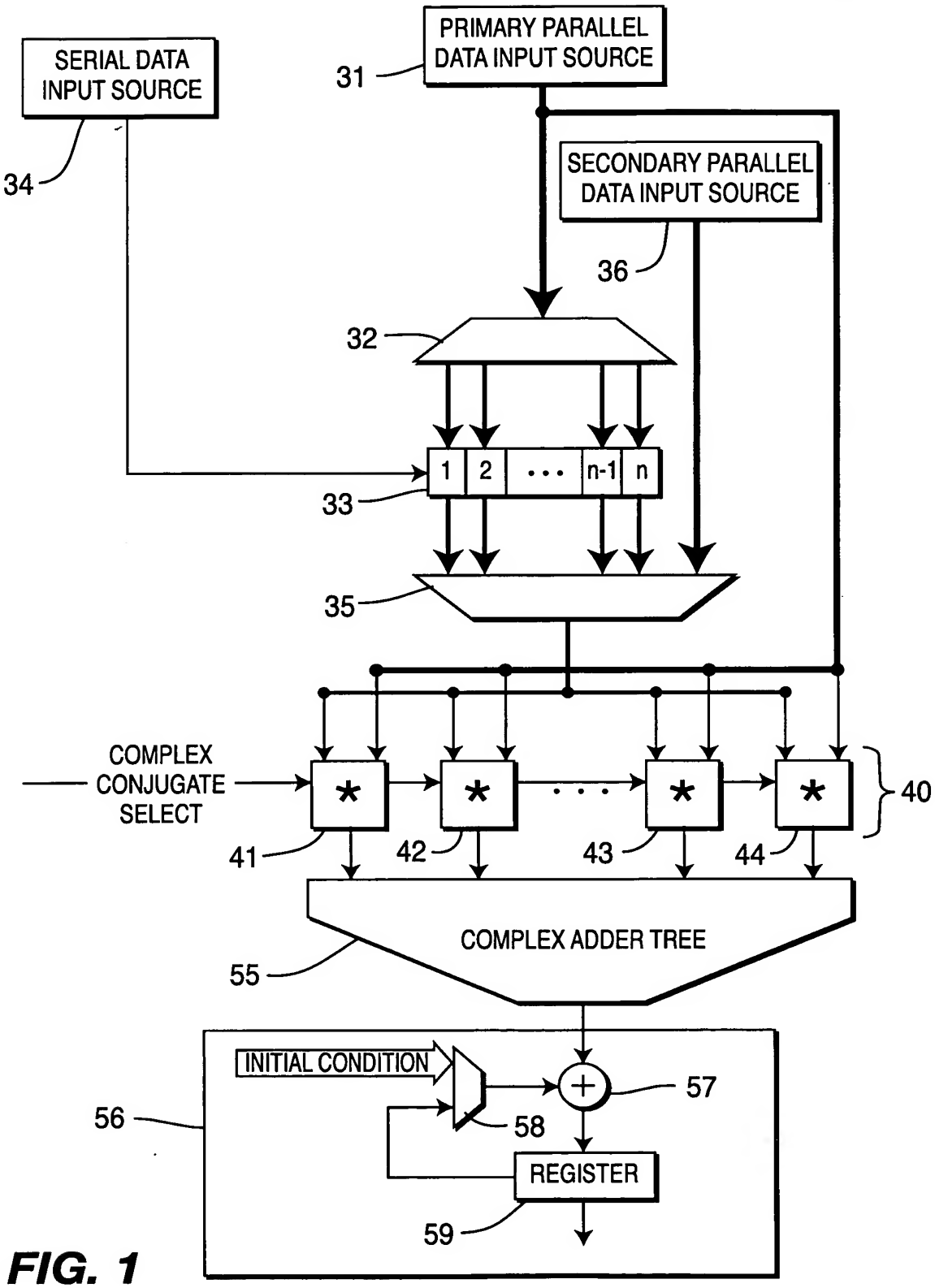

FIG. 1

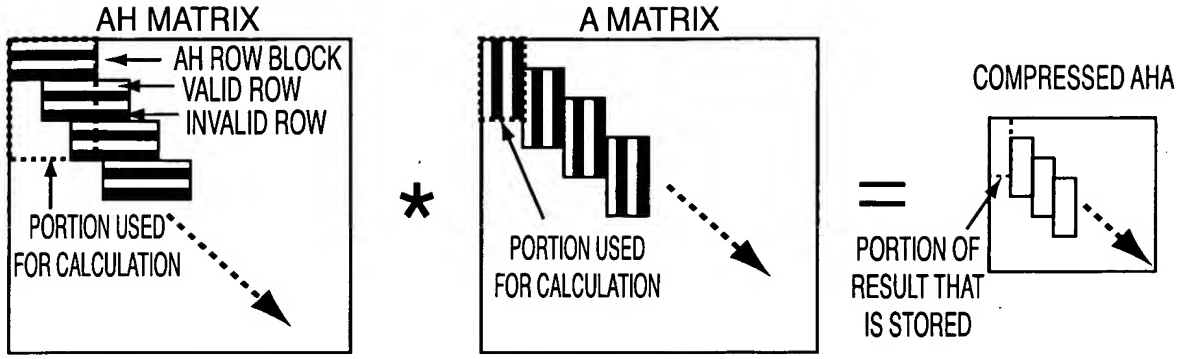

FIG. 2A

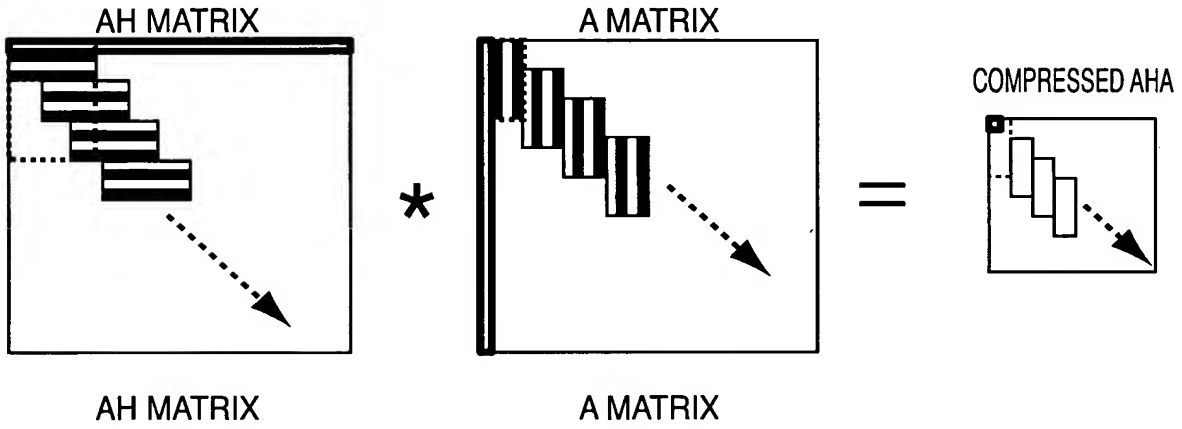

FIG. 2B

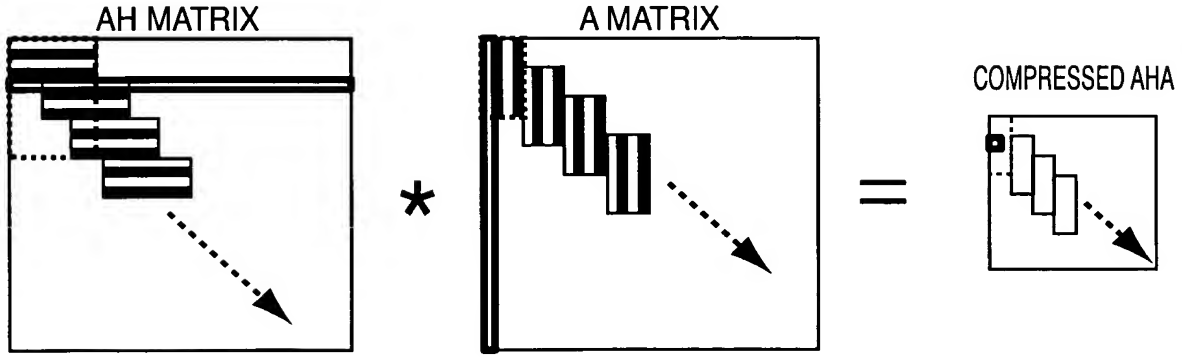

FIG. 2C

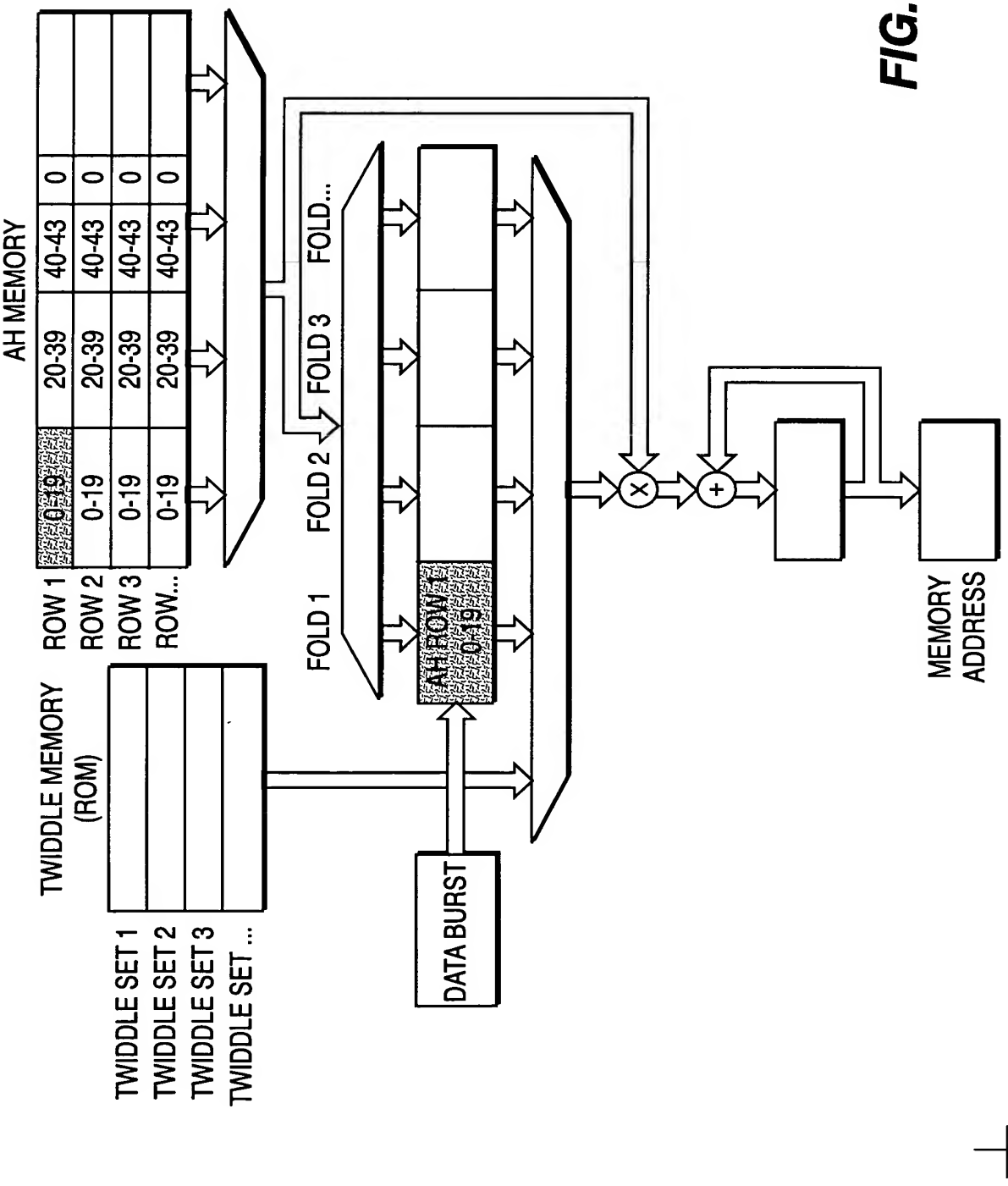
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
AH ROW 1
MEMORY
ADDRESS

FIG. 3A

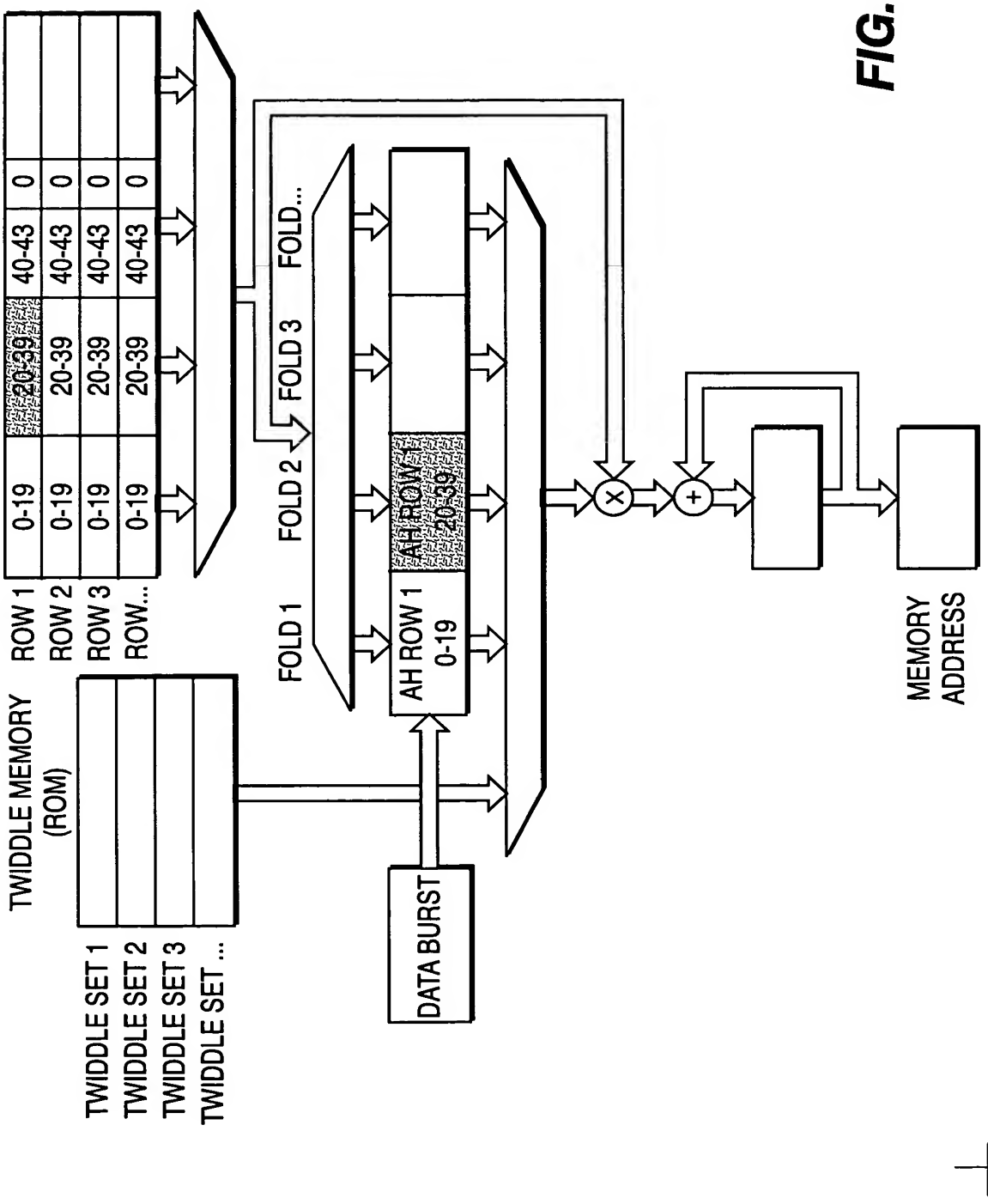
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
AH ROW 1
0-19
AH ROW 1
20-39
DATA BURST
MEMORY
ADDRESS

FIG. 3B

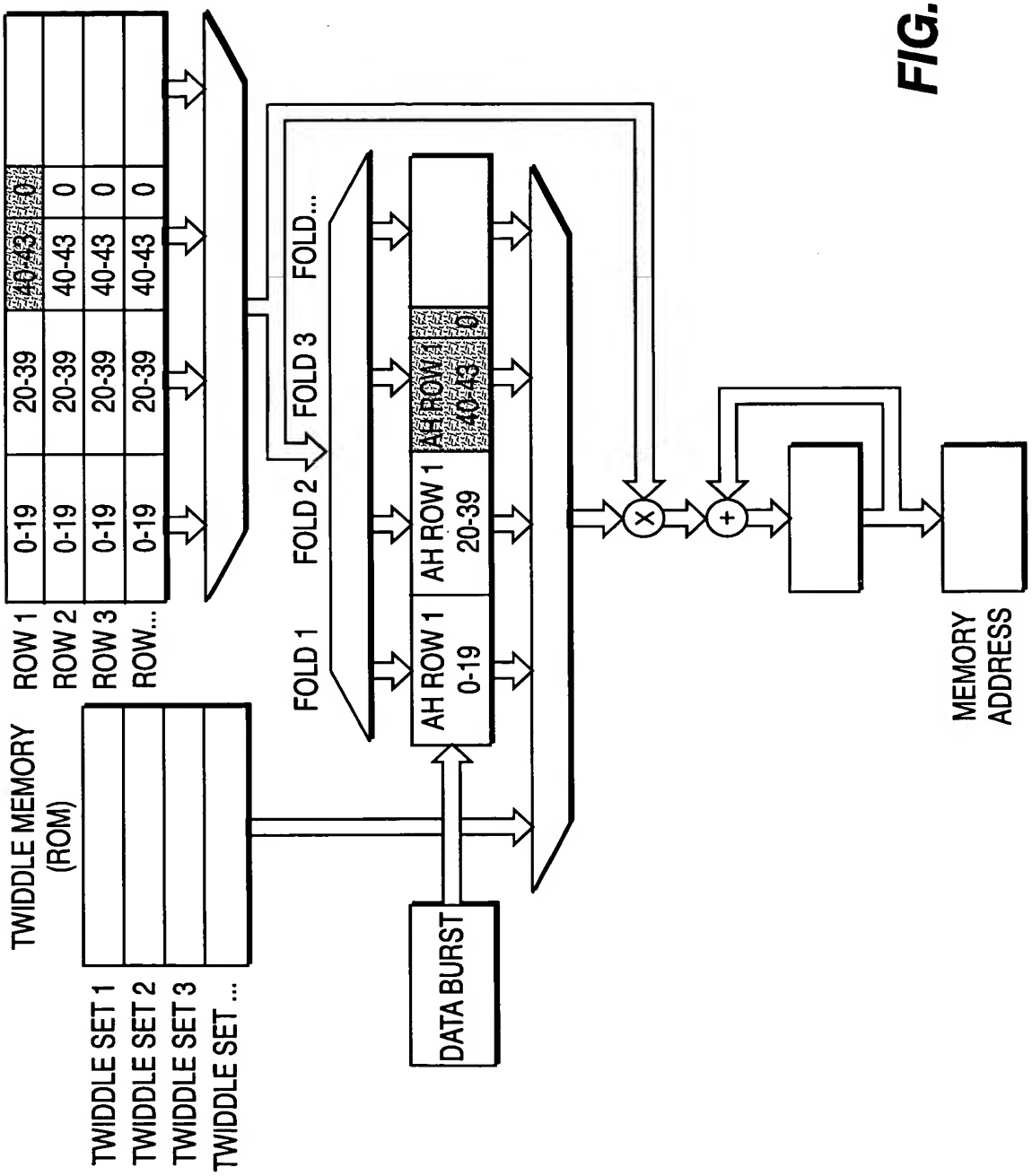
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
AH ROW 1
0-19
AH ROW 1
20-39
DATA BURST
MEMORY
ADDRESS

FIG. 3C

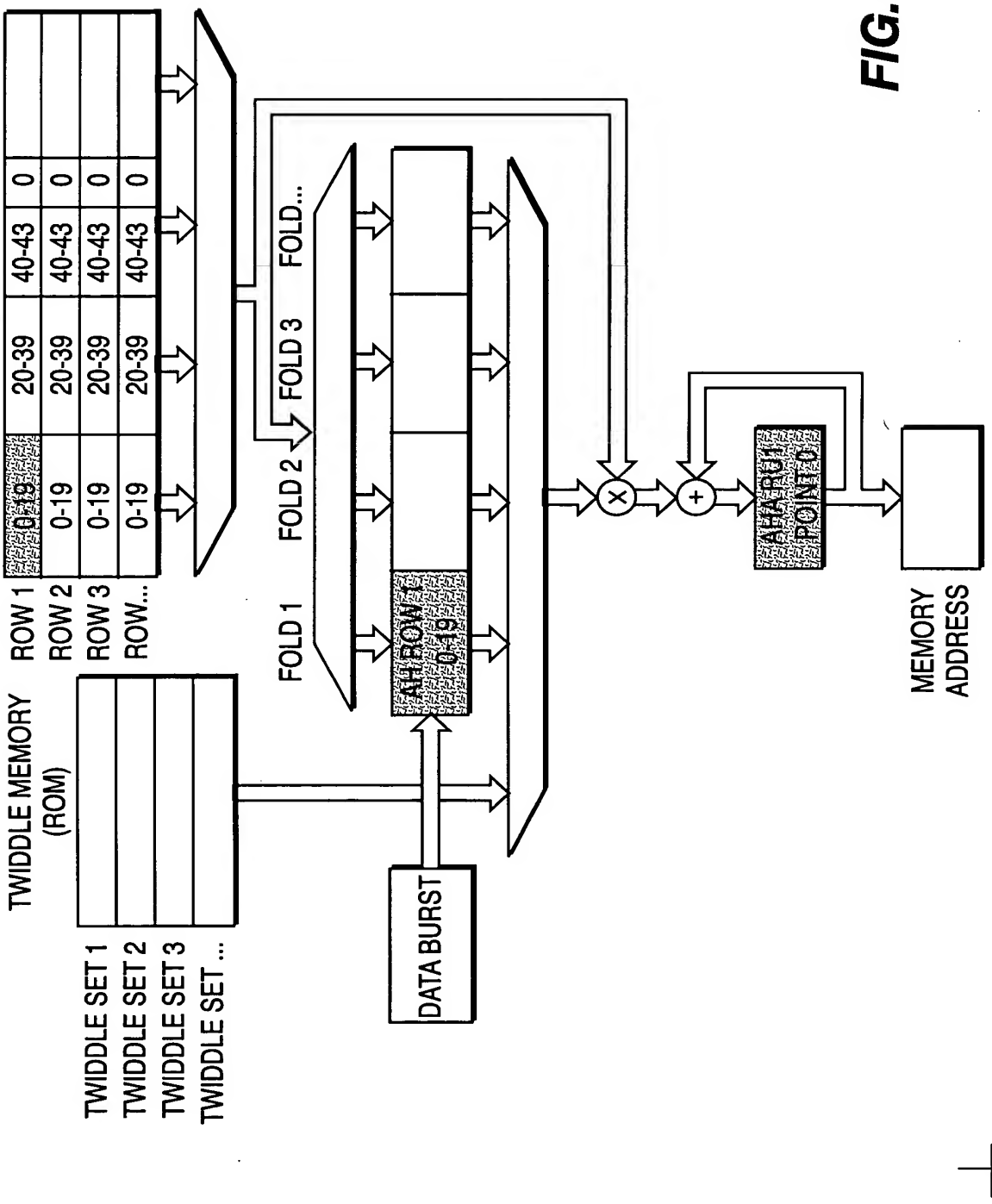
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
ALL ROW 1
0-19
DATA BURST
AHA BU1
POINT 0
MEMORY
ADDRESS

FIG. 3D

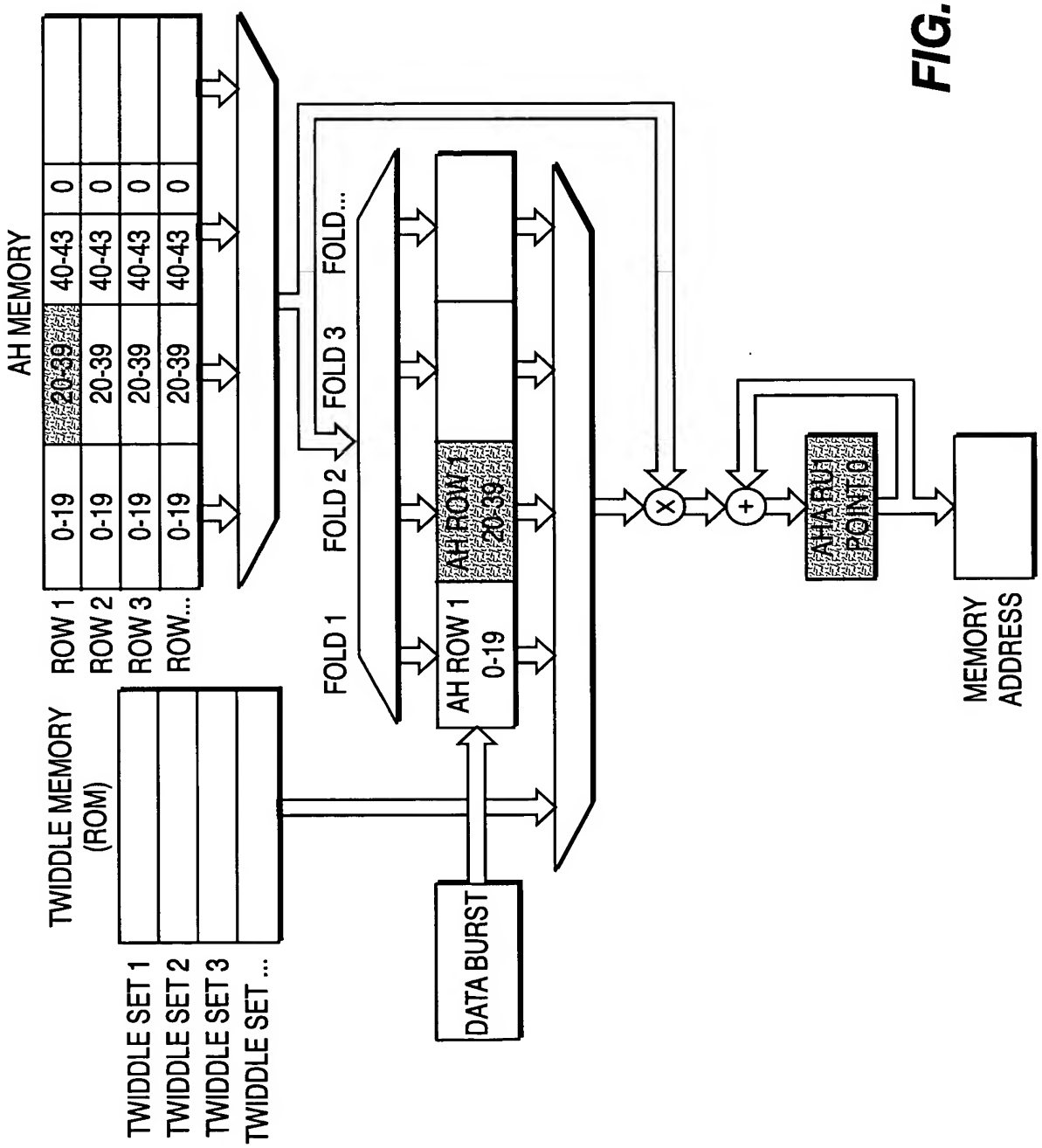
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
AH ROW 1
0-19
AH ROW 1
20-39
DATA BURST
AH BUF
POINTER
MEMORY
ADDRESS

FIG. 3E

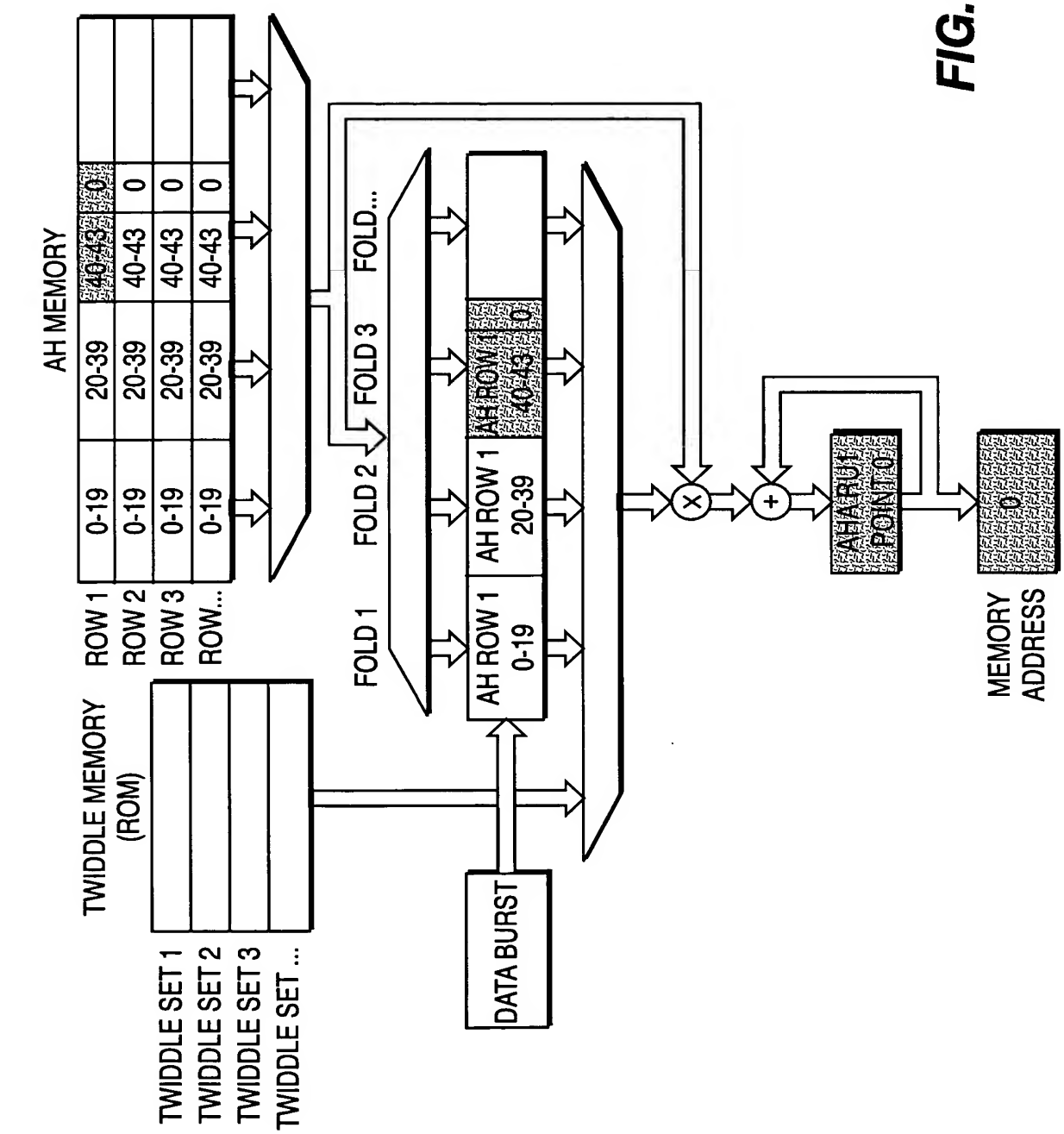
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
AH ROW 1
0-19
AH ROW 1
20-39
DATA BURST
AH ADDRESS POINTER
MEMORY ADDRESS

FIG. 3F

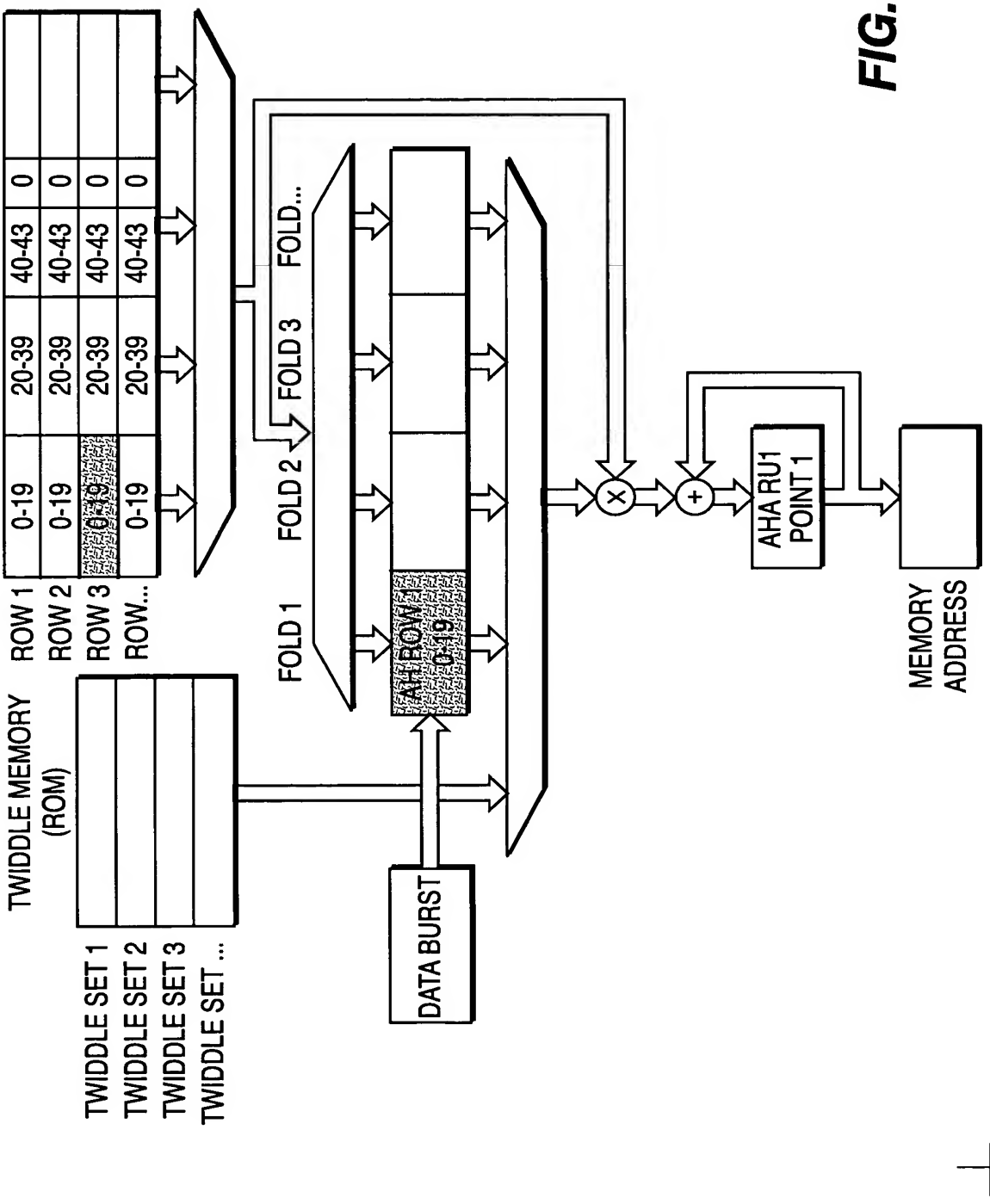
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA BURST
AHA RU1
POINT 1
MEMORY
ADDRESS

FIG. 3G

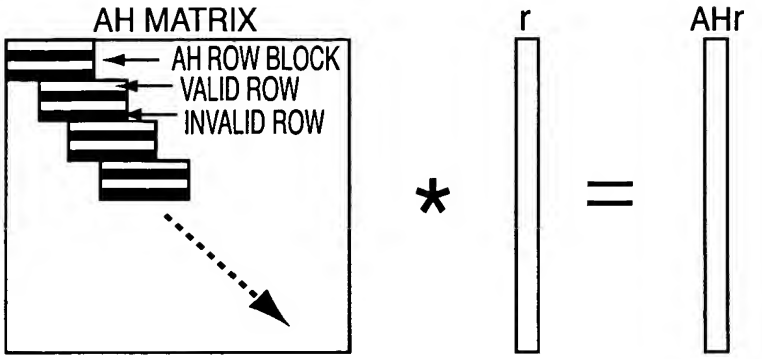

FIG. 4A

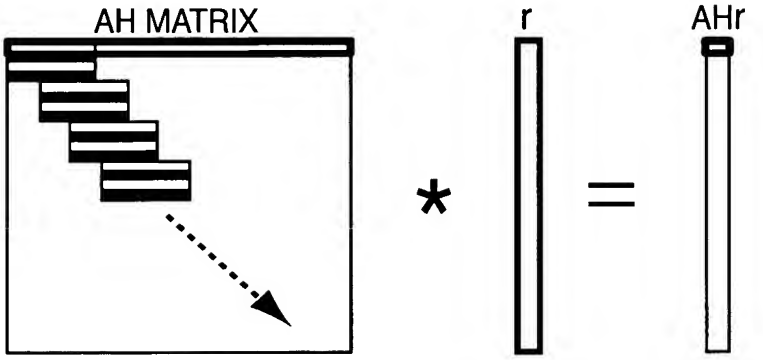

FIG. 4B

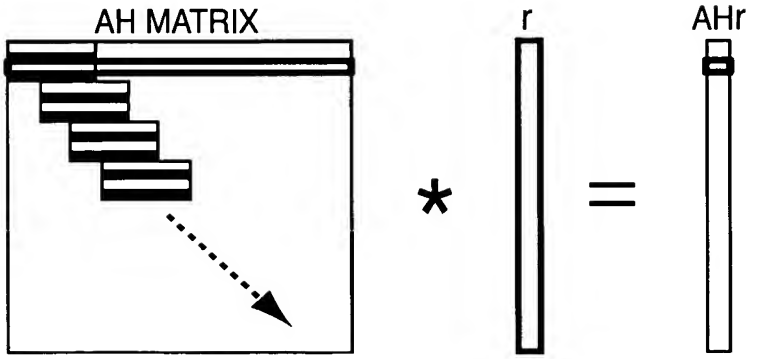

FIG. 4C

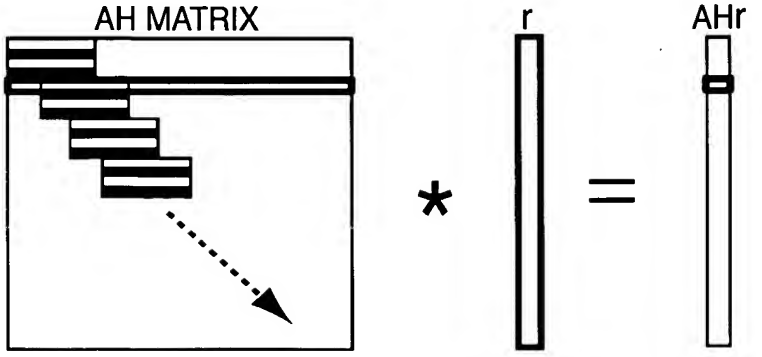

FIG. 4D

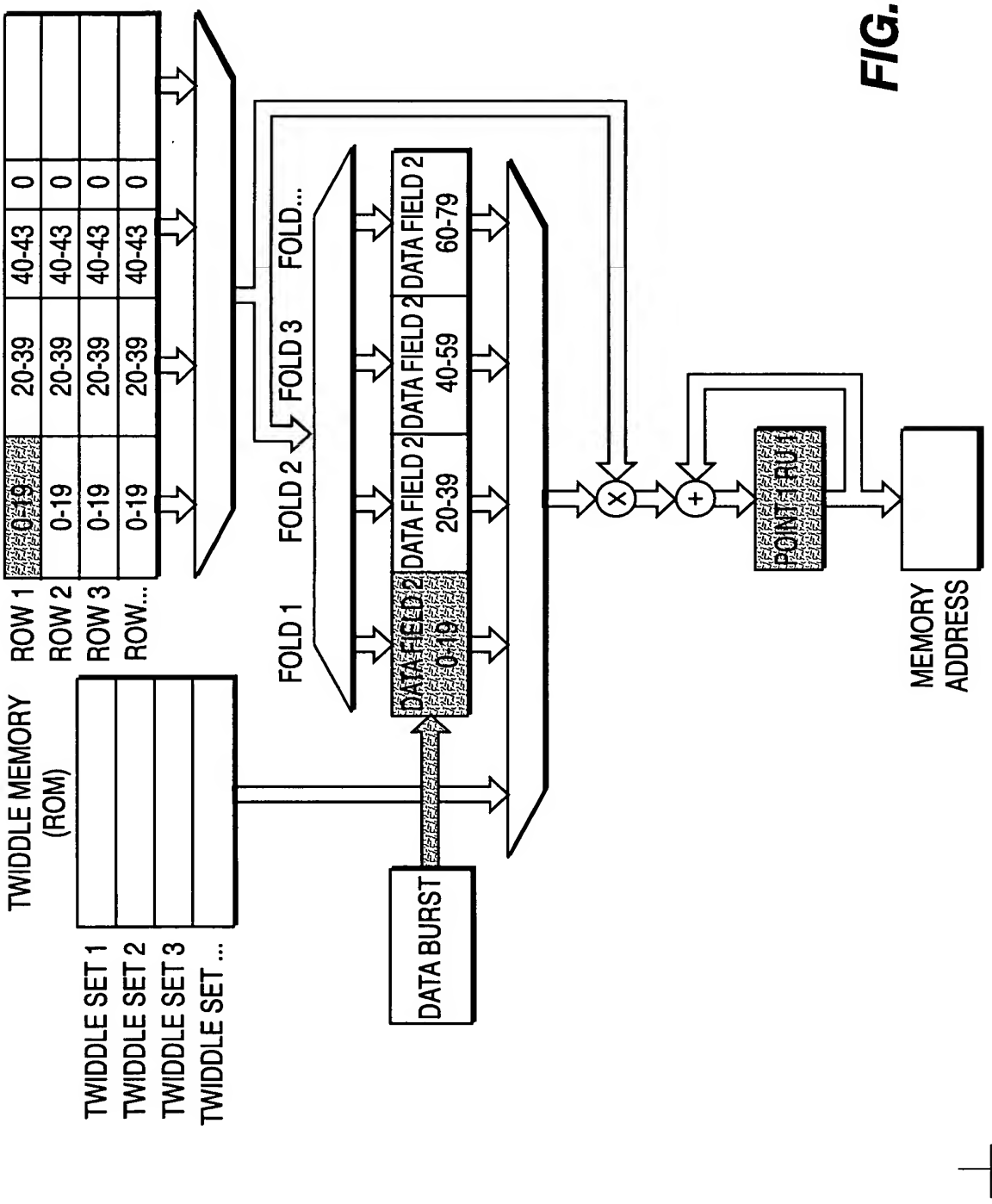
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
0-19
20-39
40-59
60-79
DATA BURST
POINTER
MEMORY
ADDRESS

FIG. 5A

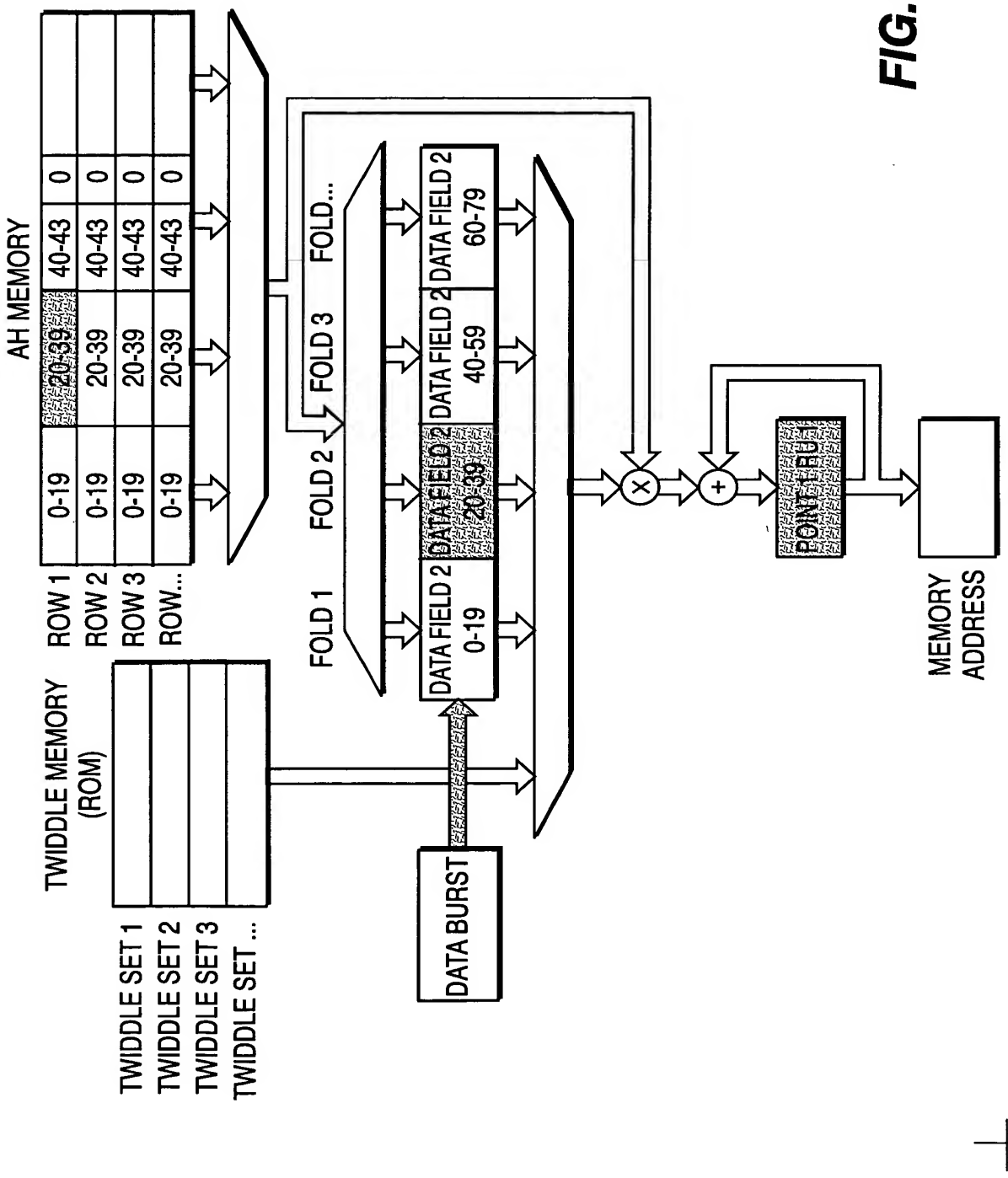
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
0-19
DATA FIELD 2
20-39
DATA FIELD 2
40-59
DATA FIELD 2
60-79
POINT BU
MEMORY
ADDRESS

FIG. 5B

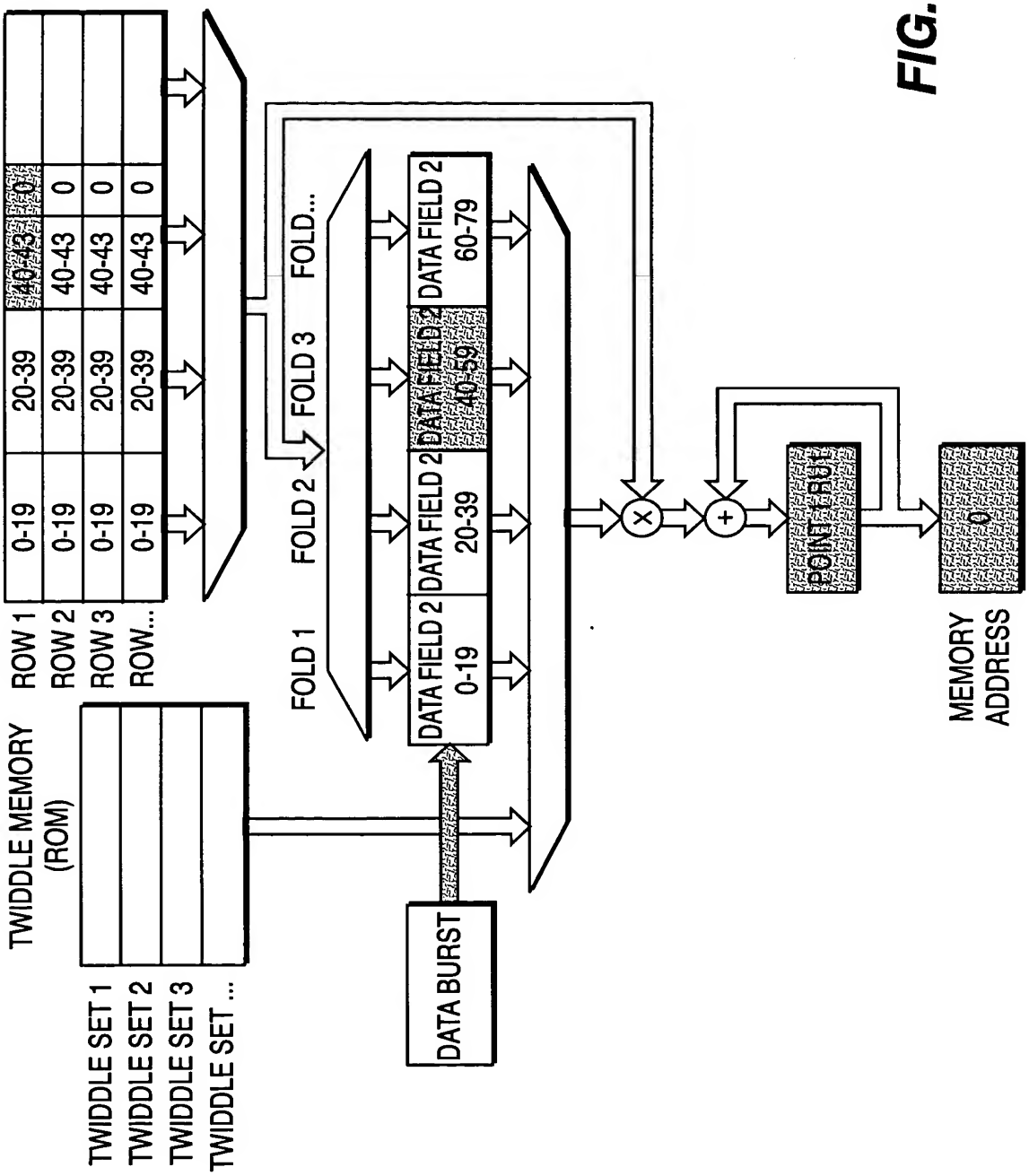
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
0-19
20-39
40-59
60-79
POINT BUT
MEMORY
ADDRESS

FIG. 5C

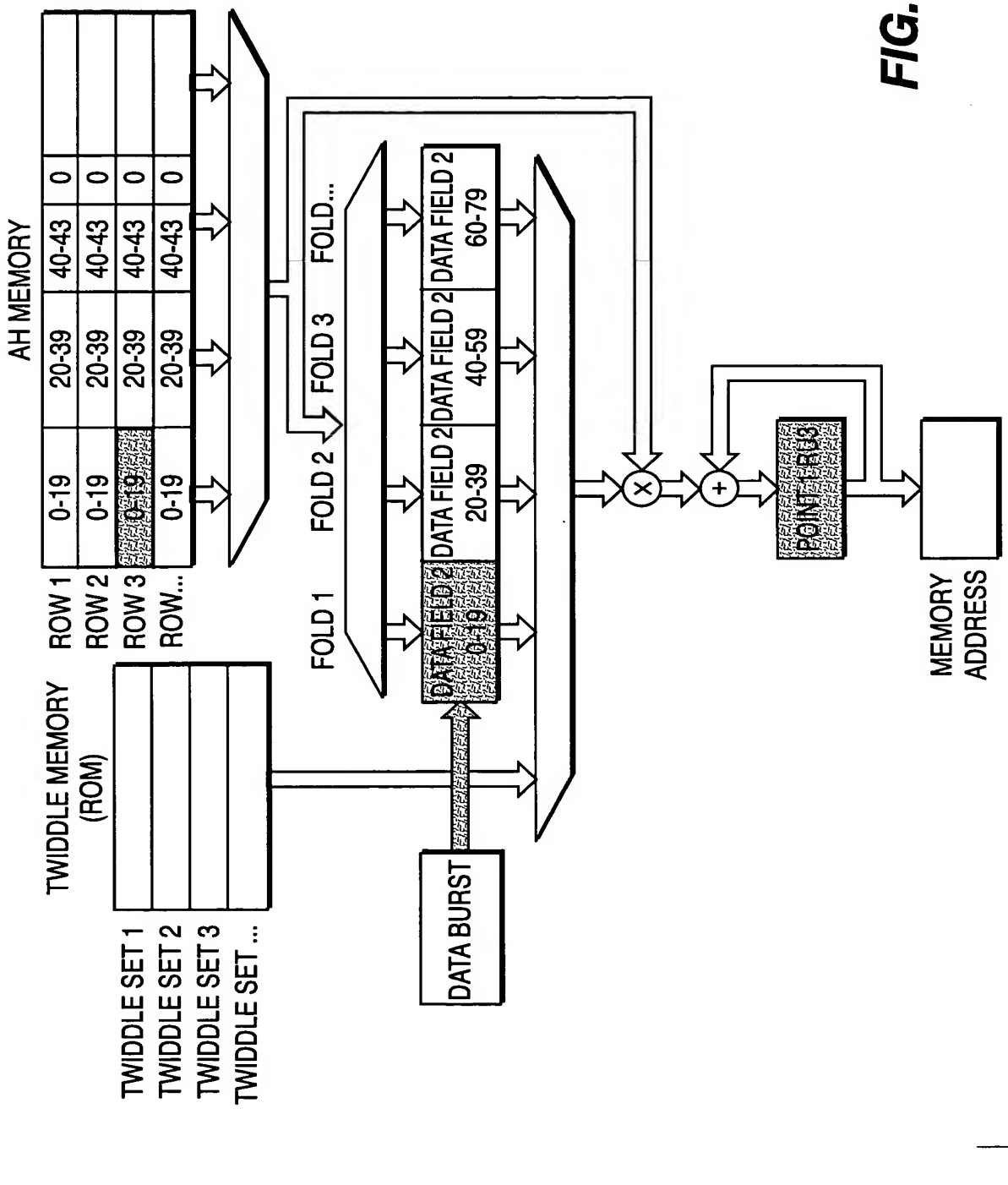
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
0-19
DATA FIELD 2
20-39
DATA FIELD 2
40-59
DATA FIELD 2
60-79
POINT FFT3
MEMORY
ADDRESS

FIG. 5D

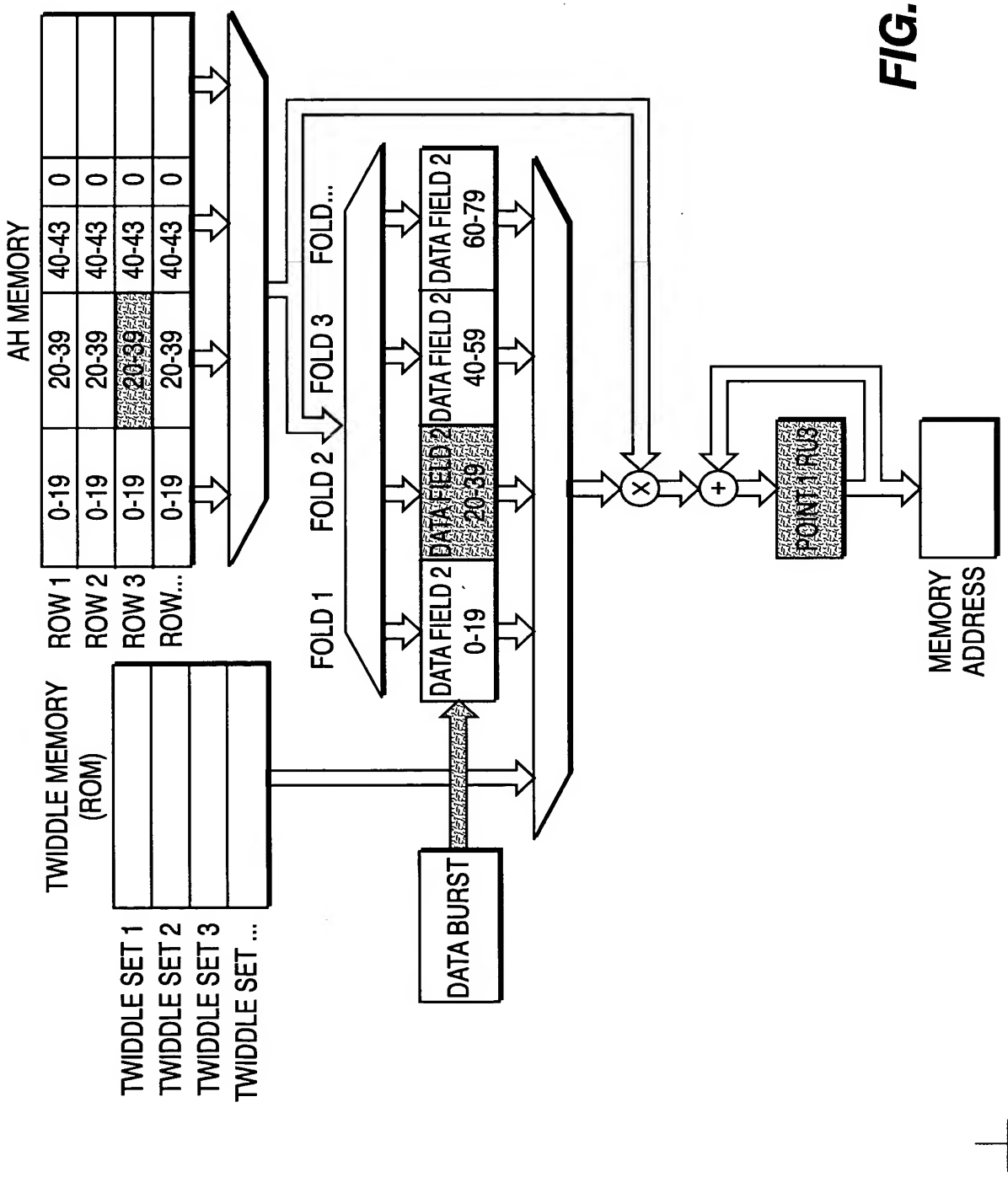
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
0-19
DATA FIELD 2
20-39
DATA FIELD 2
40-59
DATA FIELD 2
60-79
POINTER
MEMORY
ADDRESS

FIG. 5E

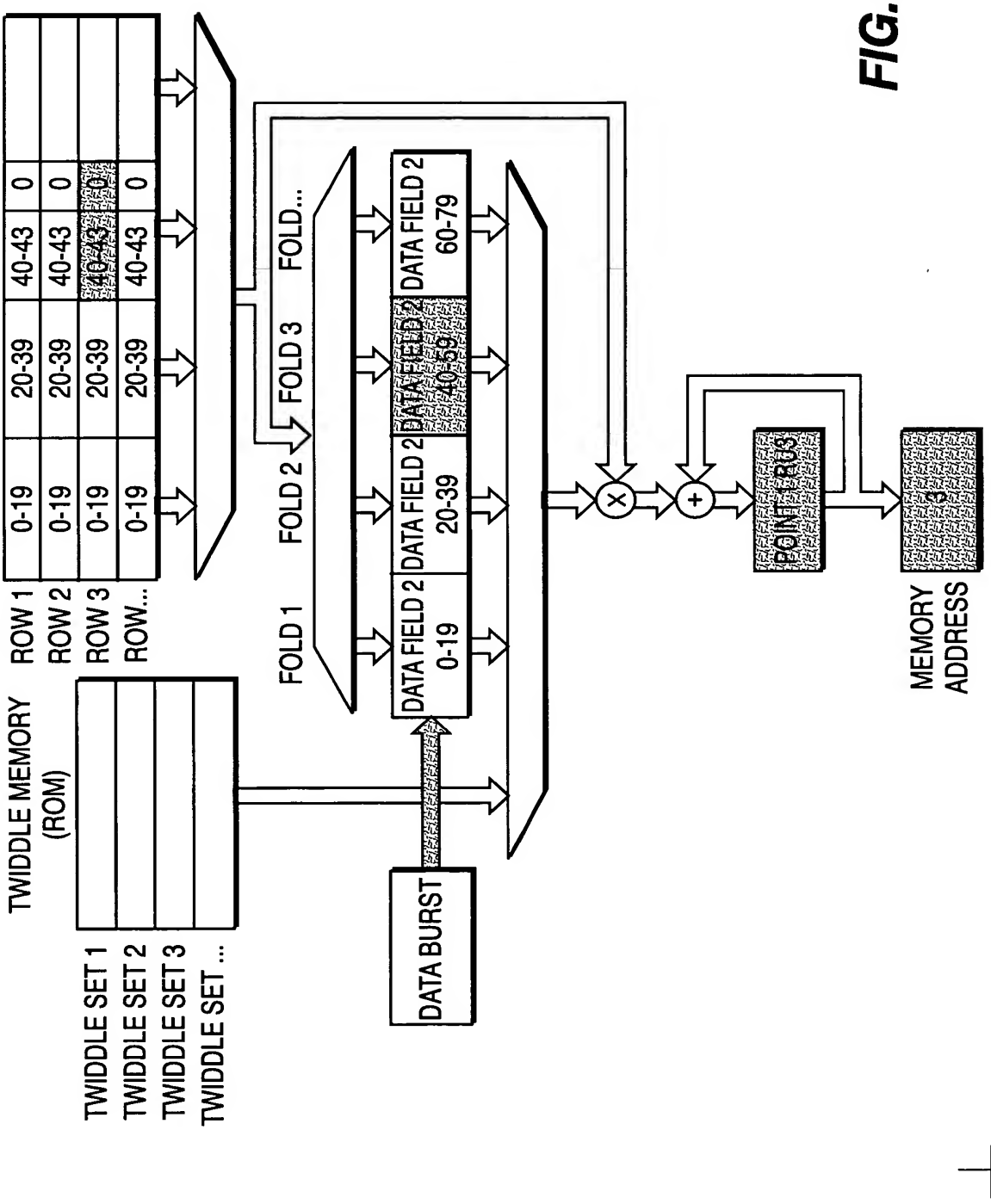
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY (ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2 0-19
DATA FIELD 2 20-39
DATA FIELD 2 40-59
DATA FIELD 2 60-79
POINT TRU3
MEMORY ADDRESS

FIG. 5F

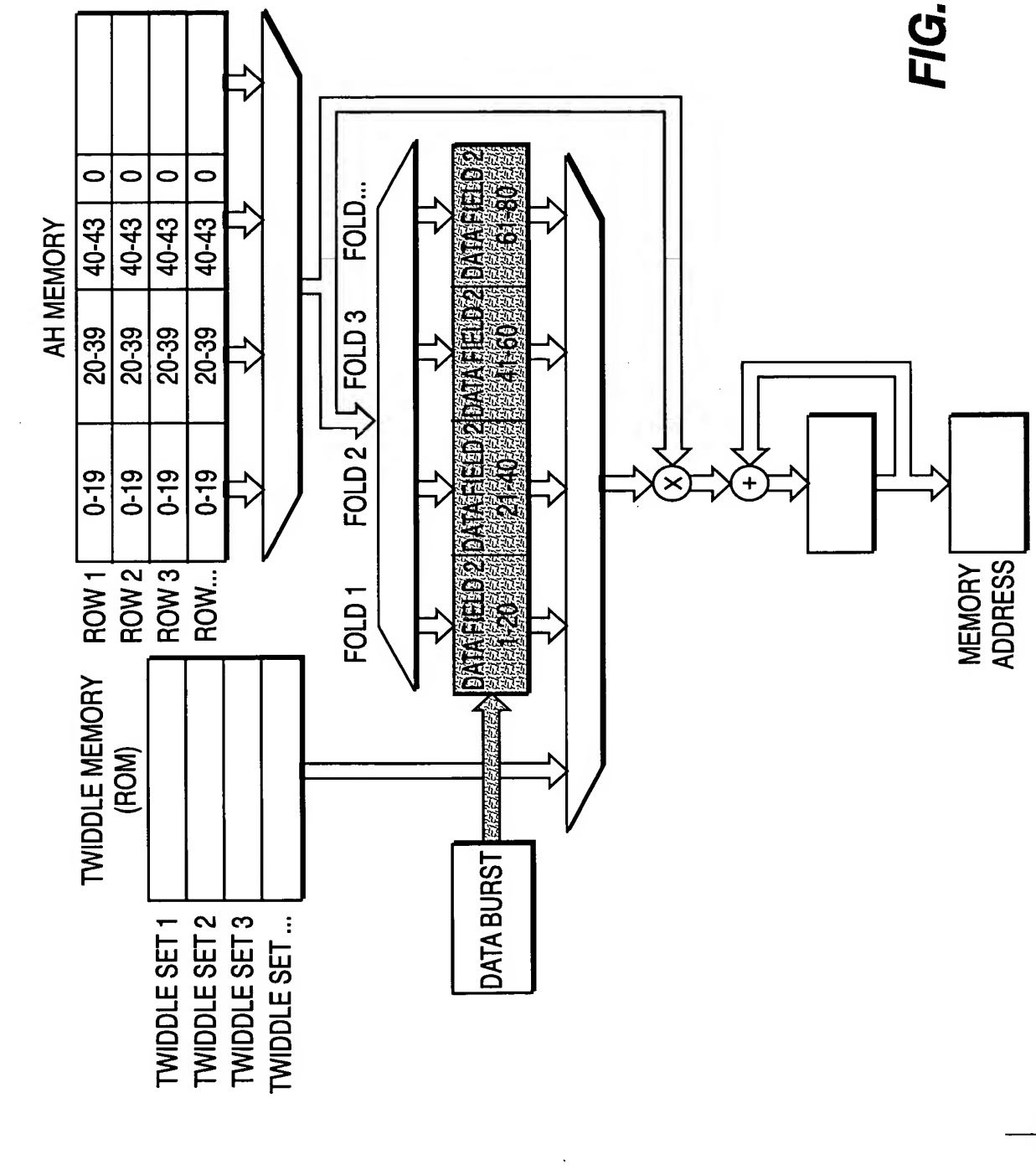
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
1-20
21-40
41-60
61-80
MEMORY
ADDRESS

FIG. 5G

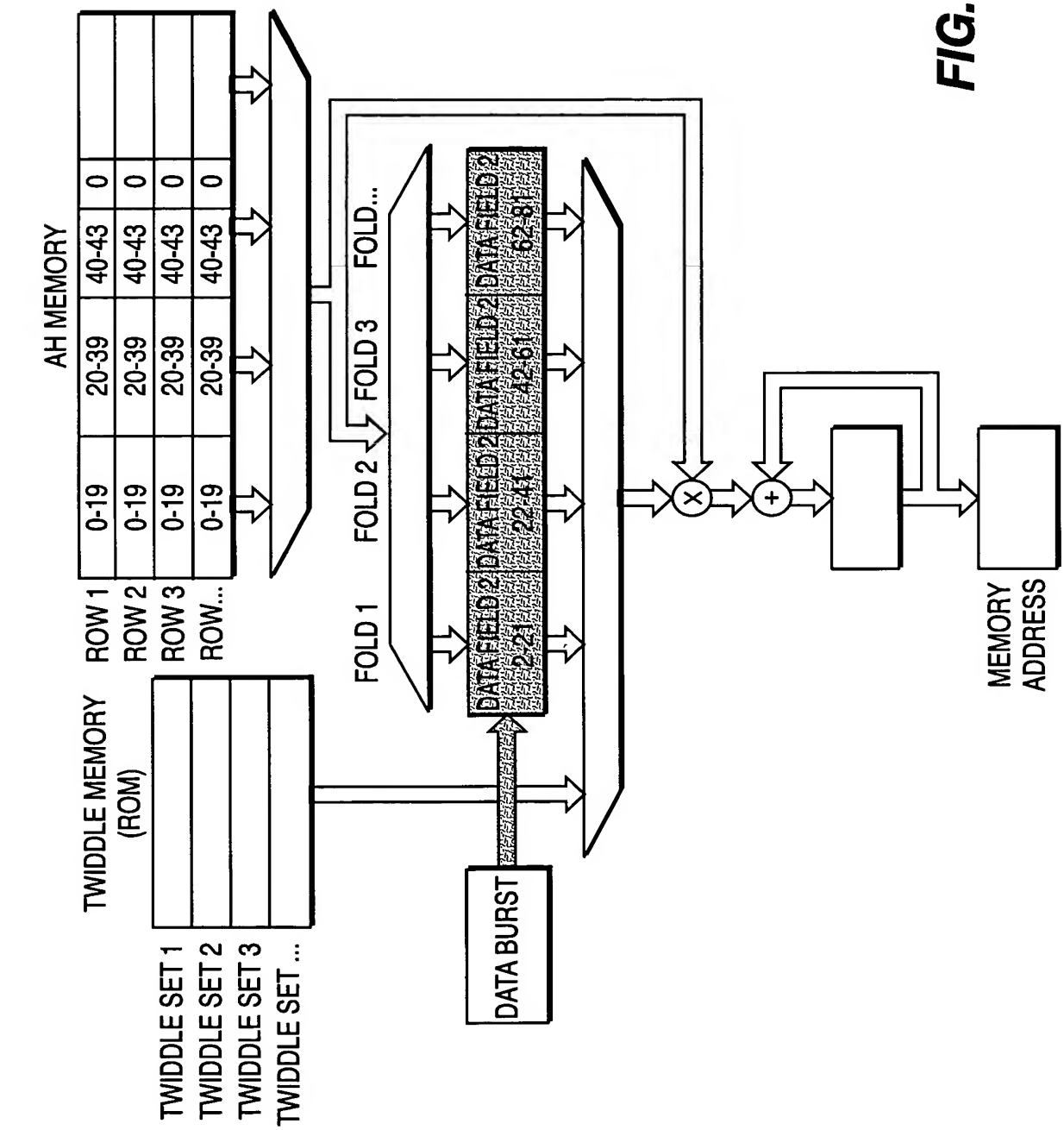
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
MEMORY
ADDRESS

FIG. 5H

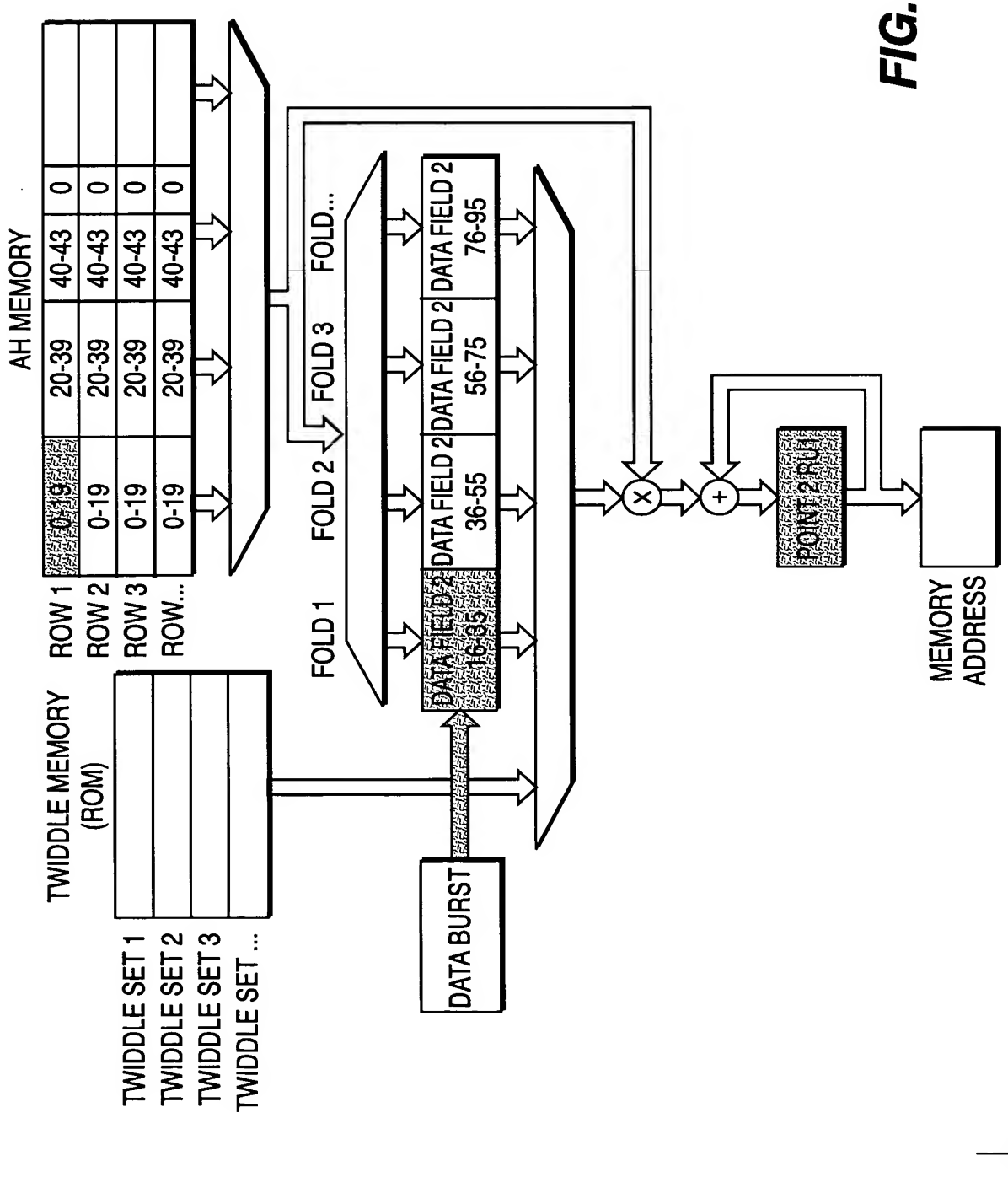
AH MEMORY
ROW 1
ROW 2
ROW 3
ROW...
0-19
20-39
40-43
0
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA FIELD 2
16-35
36-55
56-75
76-95
MEMORY
ADDRESS

FIG. 5I

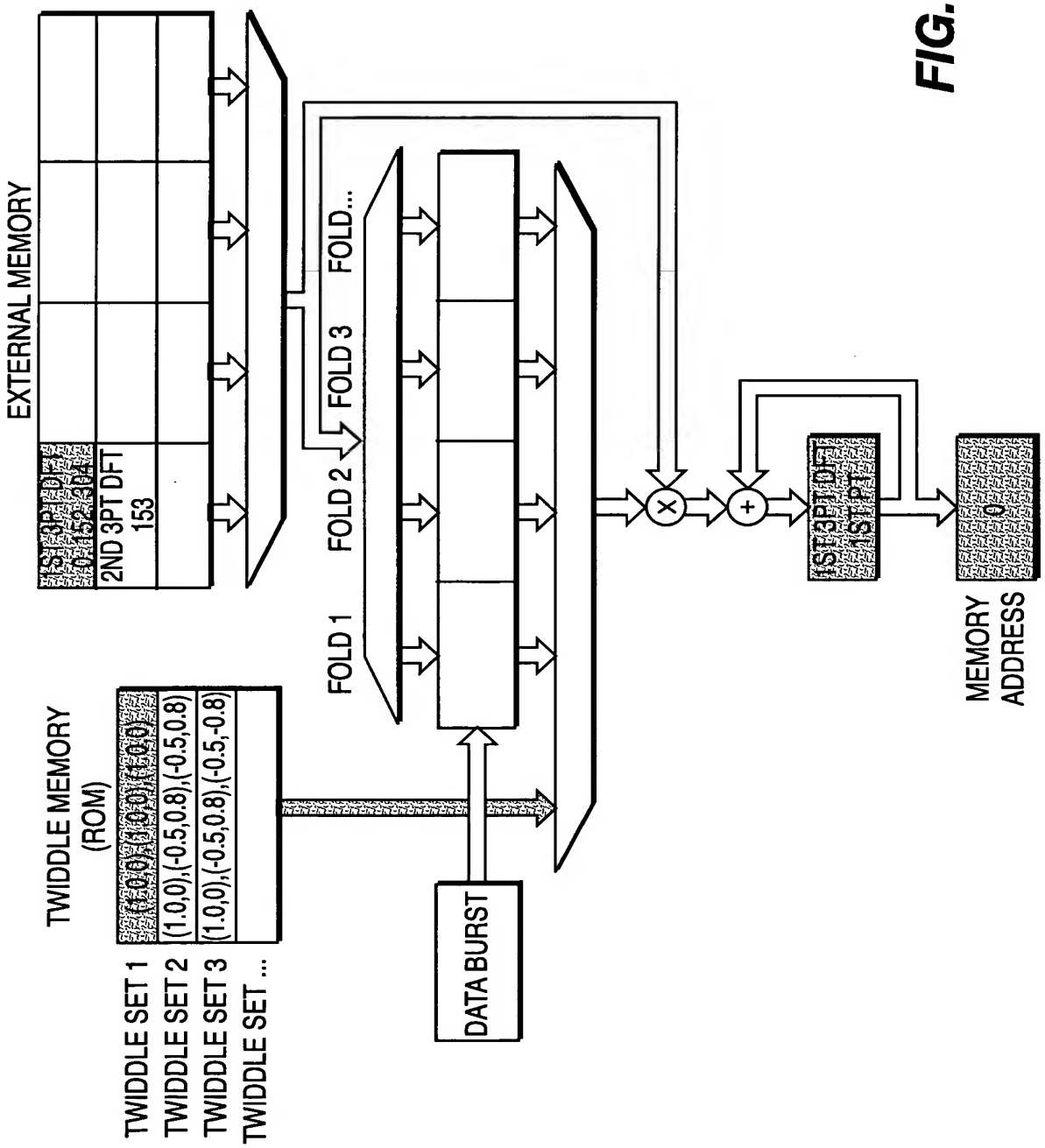
EXTERNAL MEMORY
1ST 3PT DFT
0,152,304
2ND 3PT DFT
153
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
(1,0,0),(-0.5,0.8),(-0.5,-0.8)
FOLD 1
FOLD 2
FOLD 3
FOLD...
DATA BURST
1ST 3PT DFT
1ST PT
MEMORY
ADDRESS
0

FIG. 6A

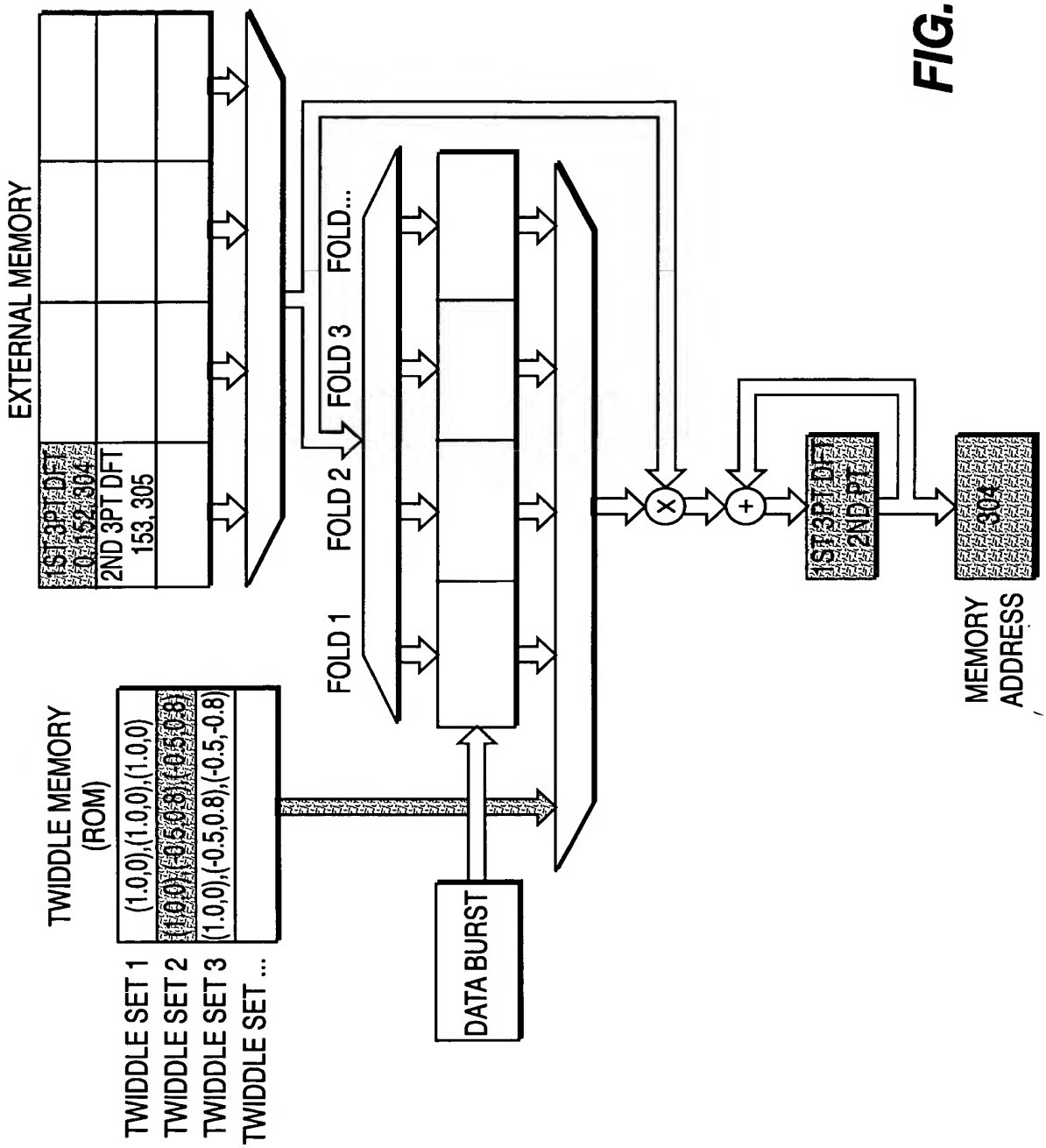
EXTERNAL MEMORY
1ST 3PT DFT
0, 152, 304
2ND 3PT DFT
153, 305
FOLD 1
FOLD 2
FOLD 3
FOLD...
TWIDDLE MEMORY
(ROM)
(1,0,0),(1,0,0),(1,0,0)
(1,0,0),(-0.5,0.8),(-0.5,-0.8)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
1ST 3PT DFT
2ND PT
304
MEMORY
ADDRESS

FIG. 6B

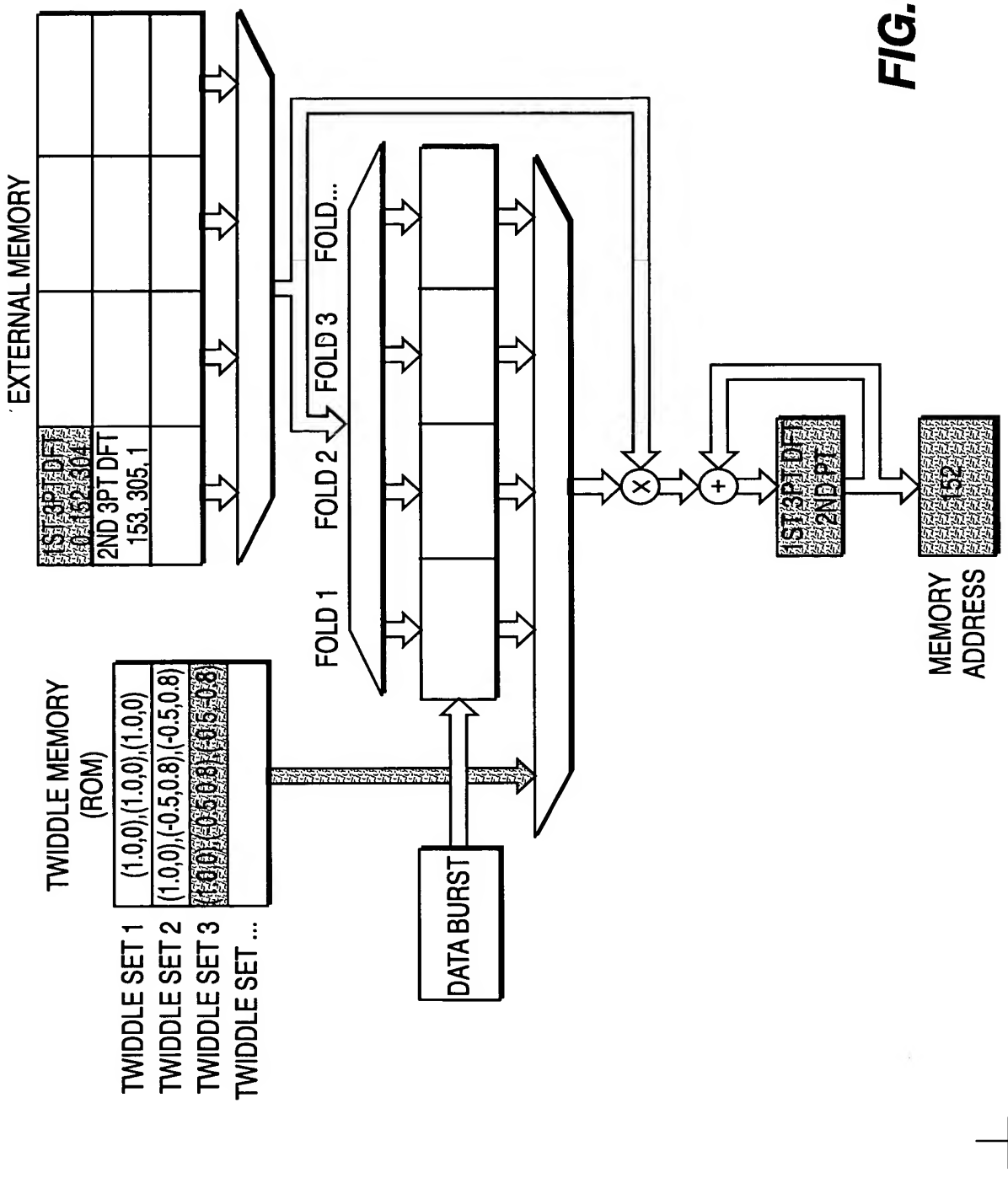
EXTERNAL MEMORY
1ST 3PT DFT
0, 152, 304, ...
2ND 3PT DFT
153, 305, 1
TWIDDLE MEMORY
(ROM)
(1,0,0),(1,0,0),(1,0,0)
(1,0,0),(-0.5,0.8),(-0.5,0.8)
TWIDDLE SET 1
TWIDDLE SET 2
TWIDDLE SET 3
TWIDDLE SET ...
DATA BURST
FOLD 1
FOLD 2
FOLD 3
FOLD...
1ST 3PT DFT
2ND PT
MEMORY
ADDRESS
0, 152, ...

FIG. 6C

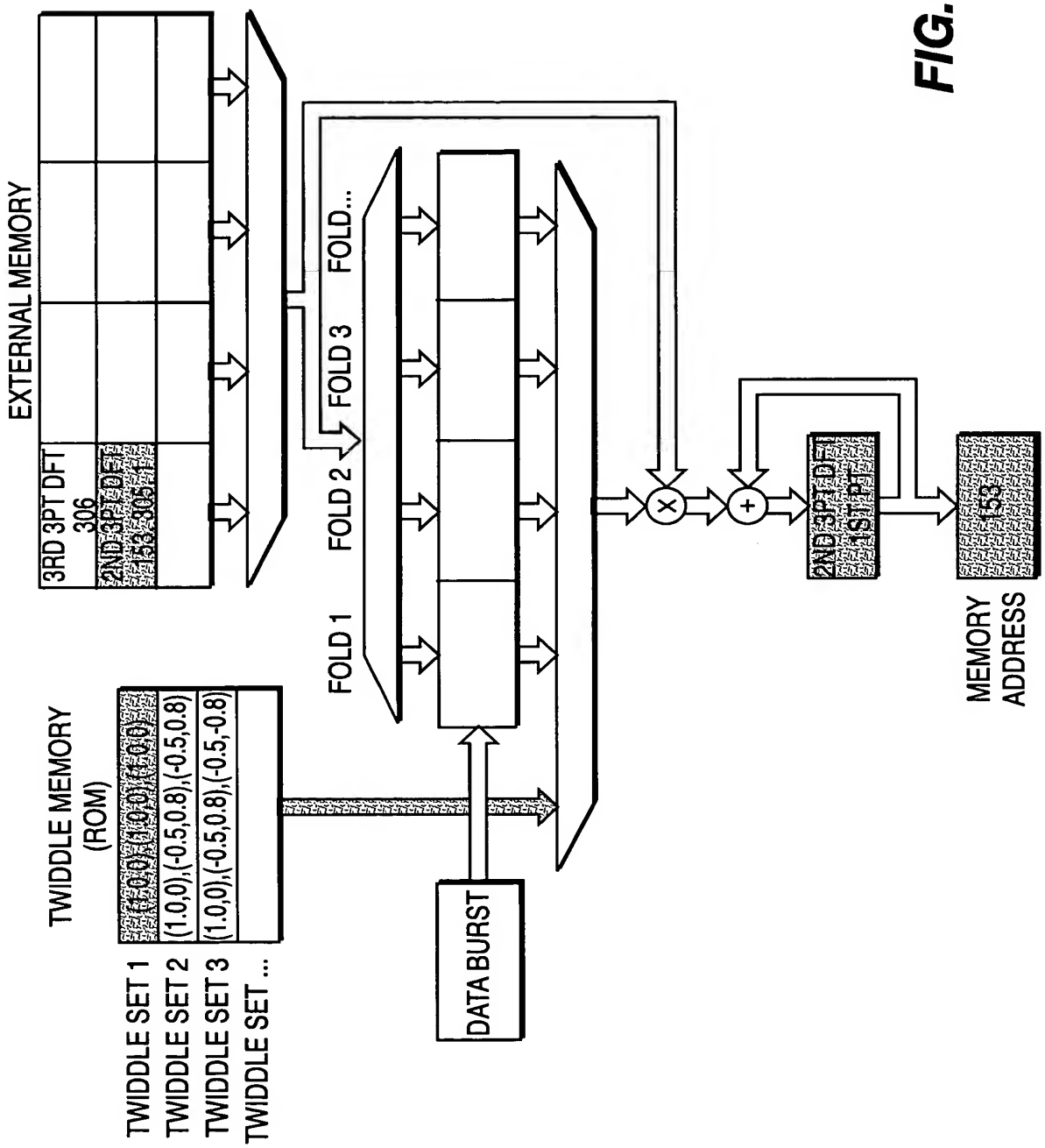
EXTERNAL MEMORY
3RD 3PT DFT
306
2ND 3PT DFT
153
305
FOLD 1
FOLD 2
FOLD 3
FOLD...
TWIDDLE MEMORY
(ROM)
TWIDDLE SET 1
TWIDDLE SET 2
(1,0,0),(-0.5,0.8),(-0.5,0.8)
TWIDDLE SET 3
(1,0,0),(-0.5,0.8),(-0.5,-0.8)
TWIDDLE SET ...
DATA BURST
2ND 3PT DFT
1ST PT
153
MEMORY
ADDRESS

FIG. 6D

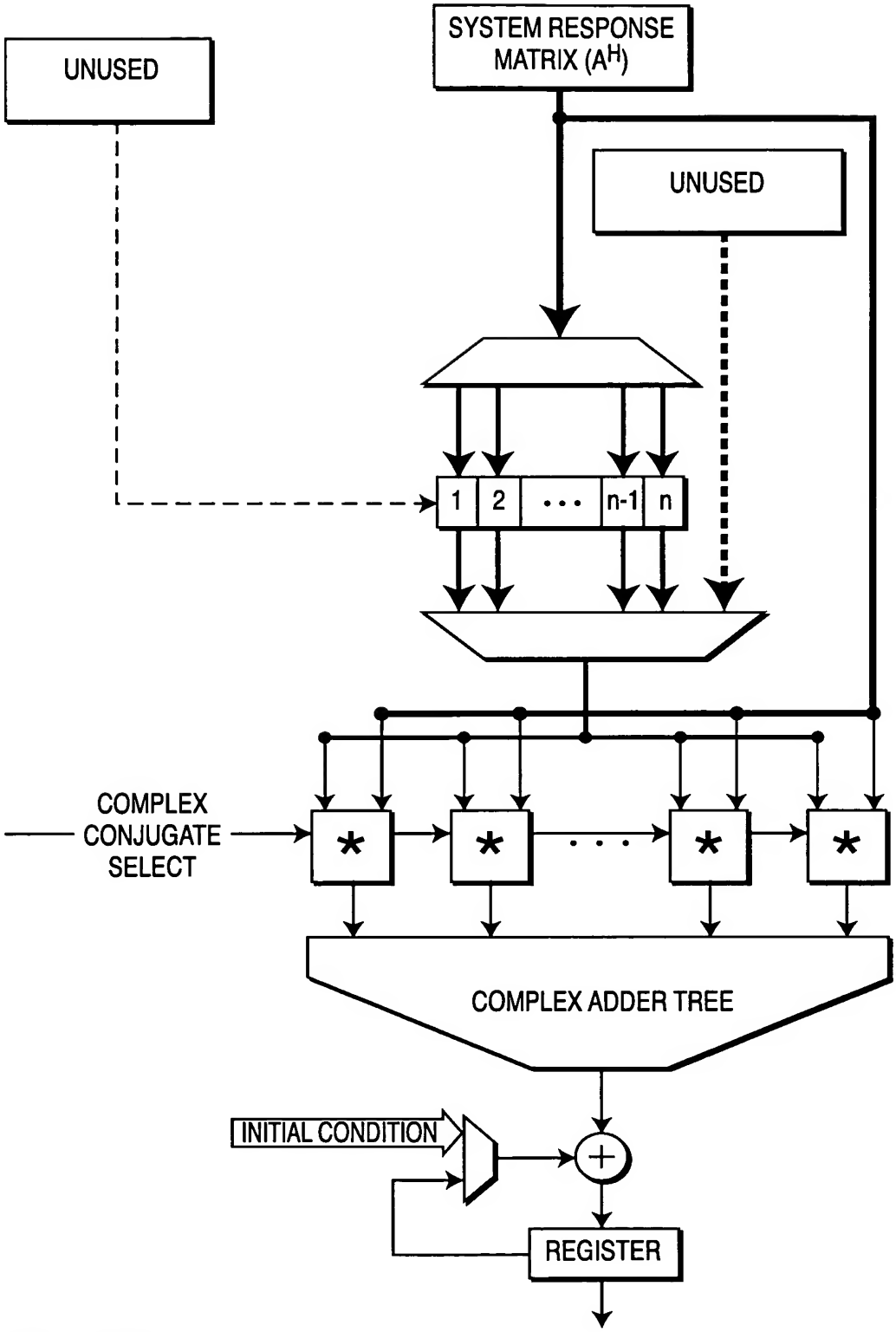
UNUSED
SYSTEM RESPONSE MATRIX (A^H)
UNUSED
1
2
• • •
n-1
n
COMPLEX CONJUGATE SELECT
*
*
• • •
*
*
COMPLEX ADDER TREE
INITIAL CONDITION
+
REGISTER

FIG. 7A

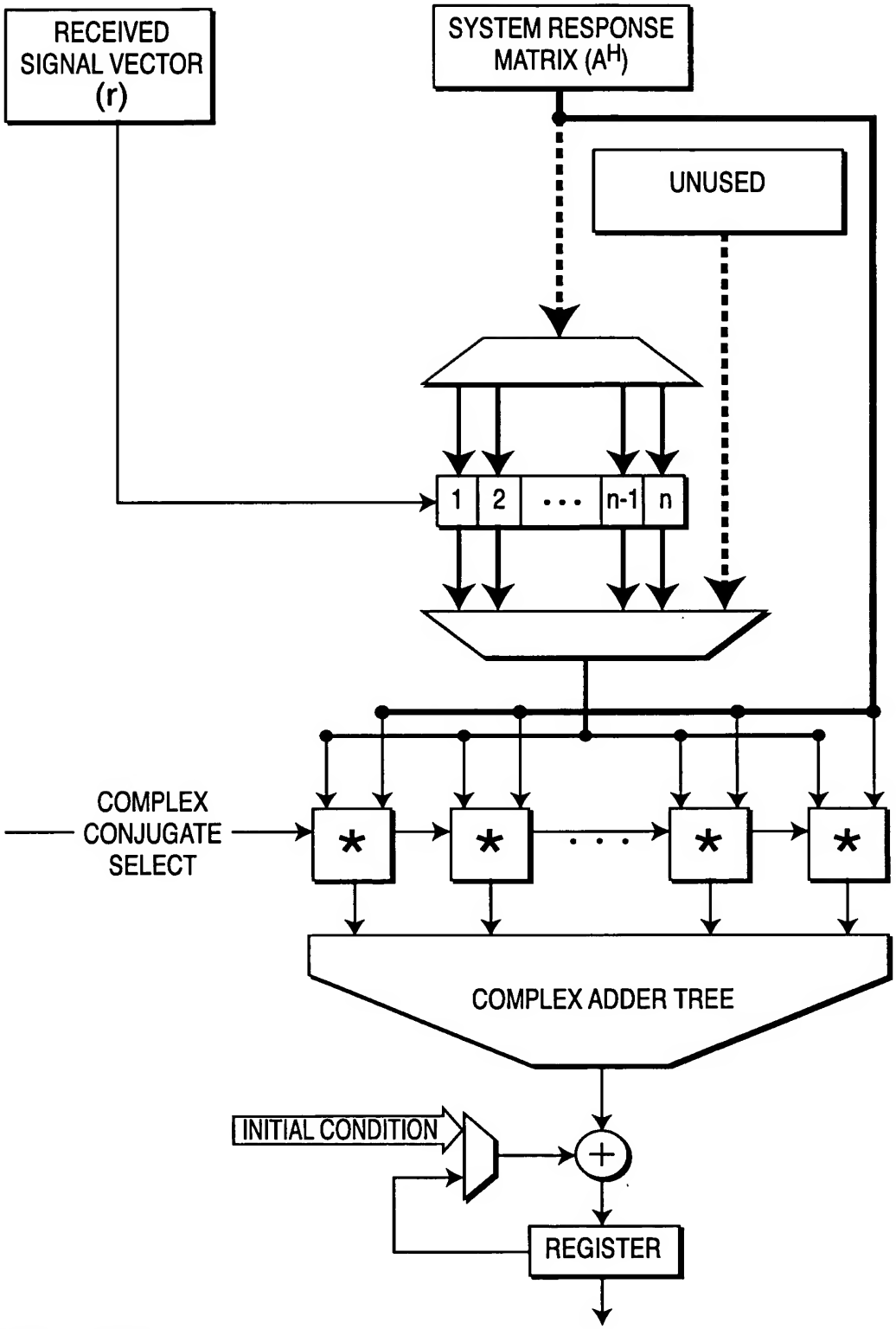
RECEIVED SIGNAL VECTOR (r)
SYSTEM RESPONSE MATRIX (A^H)
UNUSED
1
2
• • •
n-1
n
COMPLEX CONJUGATE SELECT
*
*
• • •
*
*
COMPLEX ADDER TREE
INITIAL CONDITION
+
REGISTER

FIG. 7B

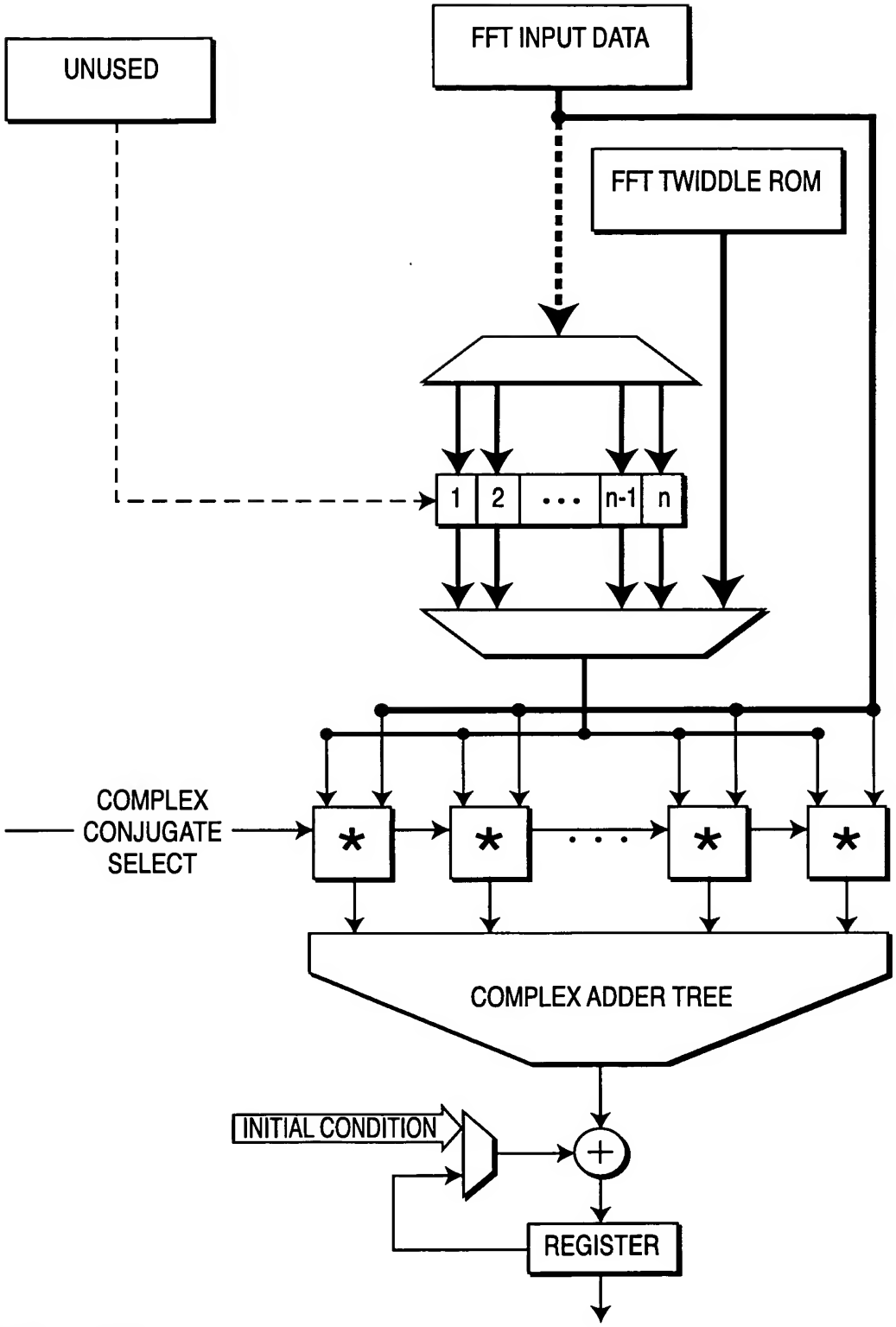
FFT INPUT DATA
UNUSED
FFT TWIDDLE ROM
1
2
n-1
n
COMPLEX
CONJUGATE
SELECT
*
COMPLEX ADDER TREE
INITIAL CONDITION
REGISTER

FIG. 7C